CALIFORNIA
ENERGY
COMMISSION

QUARTERLY REPORT

CONCERNING

MTBE USE IN CALIFORNIA GASOLINE

October 1 through December 31, 2002

Report to the Legislature

STAFF REPORT

February 2003
P300-02-002V4

Gray Davis, *Governor*

CALIFORNIA ENERGY COMMISSION

Daryl Metz
Jeff Poteet
Principal Authors

Gordon Schremp
Project Manager

Pat Perez
Manager
Transportation Fuel Supply and Demand Office

Scott W. Matthews
Deputy Director
Transportation Energy Division

Robert L. Therkelsen
Executive Director

Quarterly Report Concerning MTBE Use in California Gasoline

October 1 through December 31, 2002

Background

Senate Bill 1001 (Burton), Chapter 814, Statutes of 1999, requires the California Energy Commission to prepare a quarterly report on the amount of methyl tertiary butyl ether (MTBE) used in California gasoline. This report summarizes the amount of MTBE each California refinery used during the preceding quarter — October 1 through December 31, 2002.

The amount of MTBE reported in this document is the quantity blended at each refinery location for use in the production of California Reformulated Gasoline (CaRFG) and intended for sale in the state. The numbers do not include any MTBE used at California refineries for the production of any type of gasoline intended for sale outside the state. In addition, several small refineries operating in the state are not included in this report because they do not produce gasoline.

MTBE, a compound containing oxygen, is an oxygenate that is used to produce gasoline in California. California refiners also use two other oxygenates, ethanol and tertiary amyl methyl ether, but in significantly smaller volumes compared to MTBE. Federal law requires California refiners to use a minimum amount of oxygen in all reformulated gasoline sold in severe and extreme ozone-nonattainment regions of the state. Those areas in California (mostly in Southern California, the Sacramento Metropolitan Area, and San Joaquin Valley) account for over 80 percent of the gasoline used in the state (as of December 2002).

The California Air Resources Board adopted reformulated gasoline regulations that enable refiners to produce fully complying gasoline without the use of any oxygenates. California petitioned for a waiver of the federal minimum-oxygen requirement. On June 12, 2001, the U.S. Environmental Protection Agency denied the petition. If the request to waive the federal minimum-oxygen requirement had been granted, California refiners would have been able to reduce the volume of MTBE blended into gasoline. However, until refiners complete refinery modifications, they will likely need some MTBE to help them meet desired octane levels in premium grades of gasoline and in lower concentrations in other grades to help achieve compliance with reformulated gasoline specifications.

On March 15, 2002, Governor Gray Davis issued Executive Order D-52-02. The Order, in effect, allows California refineries up to 12 additional months for the transition from MTBE to ethanol in gasoline. Under the new timeline, the MTBE phase-out will be accomplished no later than December 31, 2003.

Fourth Quarter 2002 Results

California refiners used 8.1 million barrels of MTBE to make CaRFG during the fourth quarter of 2002. This amount represents approximately 88,000 barrels or 3.7 million gallons[1] of MTBE per day. Table 1 shows the use of MTBE by each refinery in California and total CaRFG production. Compared to the previous quarter, the total volume of MTBE used by California's refiners decreased by 8 percent. CaRFG production totaled 93.8 million barrels in the third quarter of 2002 and 86.4 million barrels in the fourth quarter of 2002 also for an 8 percent decrease. The 8 percent decrease in the use of MTBE and the 8 percent decrease in gasoline resulted in the average concentration of MTBE remaining constant at 9.3 percent in the third and fourth quarters of 2002 .

Figure 1 illustrates the average quarterly concentration of MTBE used in California's gasoline during the years of 2000 through 2002. The concentration of MTBE decreased sharply in the first quarter of 2001 and modestly in the second quarter of 2000 and the fourth quarter of 2001. The sharp drop in concentration of MTBE during the first quarter of 2001 was due to the combined factors of a significant reduction in MTBE use by Tosco Corp.[3] and the higher relative price of MTBE compared to CaRFG over the previous quarter. The drop in concentration of MTBE during the second quarter of 2000 and the fourth quarter of 2001 is primarily a result of economic factors, the higher price of MTBE relative to CaRFG.

Figure 2 compares the average quarterly spot price of CaRFG to the spot price for MTBE. The chart indicates that not only do the prices of MTBE and CaRFG vary, but also the relative difference between these prices. The changing relative prices lead to the changing economic incentives to increase or decrease the concentration of MTBE within required blending limits. The price of MTBE was low relative to CaRFG and refiners had a greater incentive to use MTBE during the first, third, and fourth quarters of 2000, the third quarter of 2001, and the second quarter of 2002. During the second quarter of 2000 and the first and fourth quarters of 2001, MTBE was relatively expensive and refiners had a greater incentive to decrease the use of MTBE.

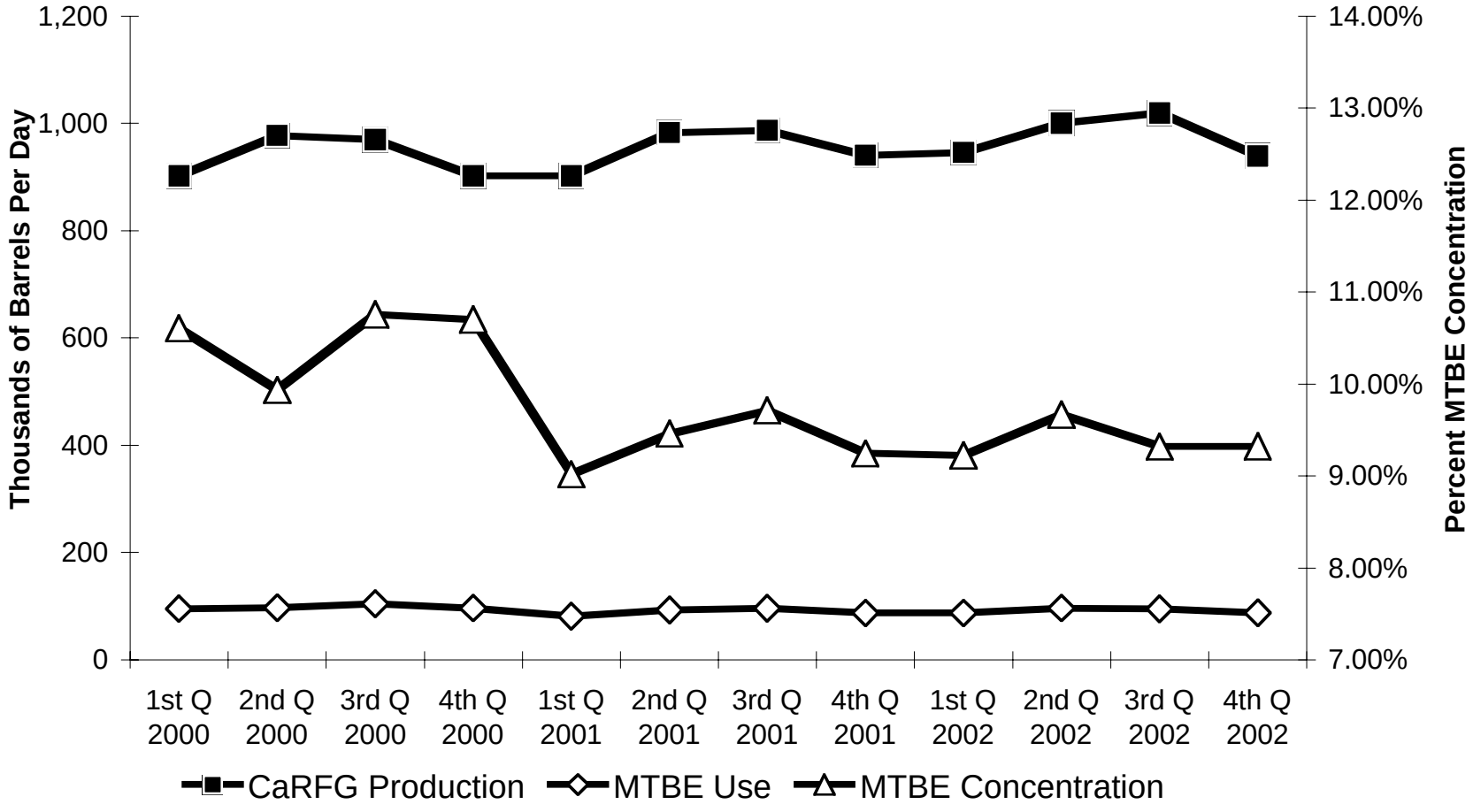
The concentration of MTBE also varies because of seasonal blending requirements. During the second quarter, it is not unusual for MTBE concentrations to increase modestly. Refiners typically reduce their use of butane as they shift from winter to summer blends of gasoline during this period. This occurred during the second quarter of 2001 and 2002.

Table 1
California MTBE Use By Refinery Location

Refiner	California Location	MTBE Use This Quarter 4th Qtr – 2002 (Thous. Of Barrels)	MTBE Use Last Quarter 3rd Qtr – 2002 (Thous. Of Barrels)	Change From Previous Quarter (Percent)
BP[4]	Carson	1936	1943	0%
ChevronTexaco[5]	El Segundo	1212	1244	-3%
ChevronTexaco[6]	Richmond	403	245	64%
ExxonMobil[7]	Torrance	711	784	-9%
Kern Oil	Bakersfield	92	112	-18%
ConocoPhillips [8]	Los Angeles	168	88	91%
ConocoPhillips [9]	Rodeo	0	0	0%
Shell[10]	Bakersfield	232	251	-8%
Shell[11]	Los Angeles	443	668	-34%
Shell[12]	Martinez	551	749	-26%
Tesoro[13]	Avon	528	695	-24%
Valero[14]	Wilmington	775	776	0%
Valero[15]	Benicia	1002	1186	-16%
State Refinery MTBE Totals		**8053**	**8,741**	**-8%**
State CaRFG Production		**86,385**	**93,795**	**-8%**
Statewide Average MTBE Content		**9.3%**	**9.3%**	**0%**

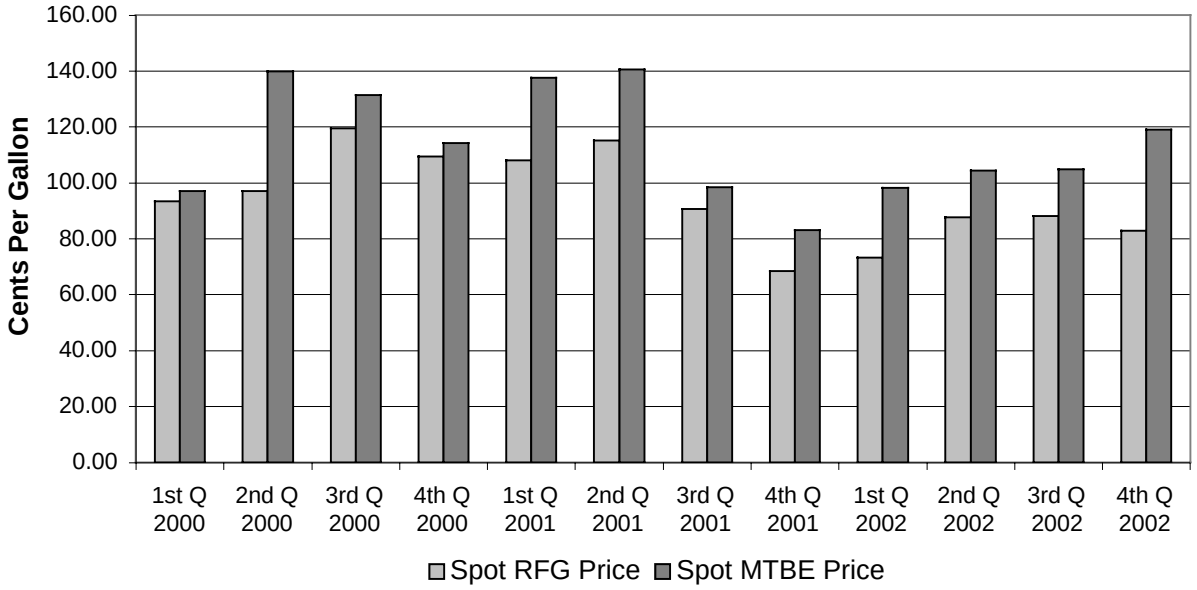
Source: California Energy Commission form number Q1001

Figure 1
California Gasoline
MTBE Concentration



Source: California Energy Commission derived averages from Oil Price Information Service daily west coast spot market reports.

Figure 2
CaRFG vs. MTBE Spot Prices
Los Angeles



End Notes

[1] A barrel is equivalent to 42 U.S. gallons.
[2] A barrel is equivalent to 42 U.S. gallons.
[3] The Tosco Corporation was acquired by Phillip Petroleum Co. on September 19, 2001. Phillips Petroleum merged with Conoco Inc. 8/30/02 to form ConocoPhillips.
[4] BP Amoco merged with ARCO to form BP 4/18/00. Prior to the merger, this refinery was known as the ARCO – Carson refinery.
[5] Chevron merged with Texaco to form ChevronTexaco 9/30/01. Prior to the merger, this refinery was known as the Chevron – El Segundo refinery.
[6] Chevron merged with Texaco to form ChevronTexaco 9/30/01. Prior to the merger, this refinery was known as the Chevron – Richmond refinery
[7] Exxon and Mobil merged 7/2000 to become ExxonMobil. This refinery was known as the Mobil Torrance refinery prior to the merger.
[8] Phillips Petroleum Co. merged with Conoco Inc. 8/30/02 to form ConocoPhillips. Phillips Petroleum Co. previously acquired the Tosco Corp. 9/2001. This refinery was known as the Tosco – Los Angeles refinery prior to that purchase.
[9] Phillips Petroleum Co. merged with Conoco Inc. 8/30/02 to form ConocoPhillips. Phillips Petroleum Co. previously acquired the Tosco Corp. 9/2001. This refinery was known as the Tosco – Rodeo refinery prior to that purchase.
[10] Shell Oil Products acquired this refinery along with all of Equilon's western US refineries 3/2002. Equilon was a joint venture formed by Texaco and Shell 4/2000. Prior to the Equilon joint venture, the refinery was operated solely by Texaco and known as the Texaco – Bakersfield refinery.
[8] Shell Oil Product acquired this refinery along with all of Equilon's western US refineries 3/2002. Equilon was a joint venture formed by Texaco and Shell 4/2000. Prior to the Equilon joint venture, the refinery was operated solely by Texaco and known as the Texaco – Los Angeles.
[12] Shell Oil Products acquired this refinery along with all of Equilon's western US refineries 3/2002. Equilon was a joint venture formed by Texaco and Shell 4/2000. Prior to the Equilon joint venture, the refinery was operated solely by Shell and known as the Shell – Martinez refinery.
[13]Tesoro Petroleum completed its purchase of this refinery from Valero on 05/17/02. Valero merged with Ultramar Diamond Shamrock (UDS) 12/2001. This refinery was known as the UDS– Avon or Golden Eagle refinery prior to the merger. UDS operated the refinery independently prior to the sale to Tesoro Petroleum.
[14] Valero merged with Ultramar Diamond Shamrock (UDS) 12/2001. This refinery was known as the UDS-Wilmington refinery prior to the merger.
[15] Valero purchased this refinery from ExxonMobil 5/2000. The refinery was known as the ExxonMobil – Benicia refinery prior to the purchase.